

XVIII. *Remarks concerning the identification of Myrmeleon formicaleo, formicarium, and formicalynx of Linné.* By ROBERT McLACHLAN, F.L.S., Sec. Ent. Soc.

[Read 20th November, 1871.]

I HAVE just received from Pastor Wallengren a most valuable contribution to European Neuropterology, in the form of the first part of his "*Skandinaviens Neuroptera*" (Kongl. Sv. Vet.-Ak. Handlingar, 1871), comprising the *Planipennia*. Naturally the Scandinavian fauna is almost identical with that of Britain; but Sweden possesses an Ant-lion, which is amongst the things hoped for by us. The name this Ant-lion should bear opens up an interesting and involved question. The family *Myrmeleonidae* is tolerably rich in species in Southern Europe; but as we approach the more central or northern portions of the Continent, it may be said to have but two representatives, and it is concerning these two that the following notes are written. One of those has the wings spotted with black or fuscous, the spots being less evident in faded individuals, or in those recently developed: this has been known under the name of *formicarius* by almost all European entomologists, *out of Sweden*, and is very abundant in warm sandy spots in most parts of central Europe, also occurring pretty generally in the south. The other has perfectly immaculate wings (excepting a whitish pterostigma): this, by modern Neuropterists, is generally known, *out of Sweden*, by the name of *formicalynx* (it is the *innotatus* of Rambur, according to the type, and the *neutrum* of Fischer v. Waldheim), and has a more decided northern range, extending far into Siberia, yet also occurring in Spain and southern Italy. I make no mention of other characters, because the presence or absence of spots on the wings is enough for my present purpose.

It is evident that, sooner or later, Linné confounded those two distinct species as forms, or local varieties, of one.\*

In the first edition of the 'Fauna Suecica' (1746), he says, of an Ant-lion (without trivial name) "*alæ obsolete nebulosæ.*"

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\* Cf. Villers, Linn. Ent. iii., pp. 59-60.

In the tenth edition of the 'Systema Naturæ' (1758), we find an insect named *Hemerobius formicaleo*, still with the word "*nebulosis*" applied to the wings.

In the second edition of the 'Fauna' (1761), there is again a *Hemerobius formicaleo*, but there is here no mention of the nebulous or spotted wings; these members are simply said to be "*hyaline, venis fuscis reticulate*."

Finally, in the twelfth edition of the 'Systema' (1767), the name is changed to *Myrmeleon formicarium*, and there is a very significant modification of the description, the words now being "*alæ nostratis absque maculis fuscis*," making it evident that the Swedish insect had immaculate wings, whereas he had seen individuals from other quarters with spotted wings, or, at any rate, was made acquainted with such by the works of contemporary authors.

The modern Swedish entomologists\* affirm that one species only of *Myrmeleon* occurs in their country, that with the immaculate wings, hence the *formicarium* of the twelfth edition of the 'Systema,' and the *formicaleo* of the second edition of the 'Fauna.'

Linné cites the works of Réaumur, Vallisnieri, Roesel, Sulzer, Schæffer ('Elementa'), Poda, and Geoffroy, and all these authors describe or figure the spotted-winged species, excepting Schæffer, who distinctly figures that with immaculate wings.†

How then did he come to describe the insect, as with markings on the wings in his earlier works;? and this question is more especially directed to the first edition of the 'Fauna.' I hazard a conjecture. It is well known that the perfect insects of *Myrmeleon* are rarely seen at large in a state of nature, they being nocturnal in their habits, concealing themselves adroitly during the day. On the other hand the larvæ, or rather the pit-falls made by them, force themselves upon our attention. Hence I consider it very probable that Linné, at the time of pub-

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\* Wallengren remarks, that he formerly (Ofv. Vet.-Ak. Forhand., 1863) erroneously diagnosed the Swedish insect as with spotted wings, and that Thomson made the same mistake.

† In his private, interleaved, copy of the twelfth edition of the 'Systema' (in the possession of the Linnean Society), Linné (in MS.) refers the *immaculatum* of De Geer, as a synonym of *formicarium*; and Wallengren likewise includes the name among the synonymy given by him. But De Geer's insect is stated to be from Pennsylvania; it is a recognisable, and common, North American species (cf. Hagen, North American Synopsis, p. 231). Gmelin makes the name a synonym of *formicalynæ*, and adds 'America' as a habitat for that species.

lication of his earlier works, knew of the existence of an Ant-lion in Sweden from the larvæ only, considering those to produce the insect made familiar to him by the works of his contemporaries in other parts of Europe. But, later, the Swedish species became known to him, and he then amended his descriptions accordingly, emphasising his last by the word "*nostratis*."

There yet remains to be considered the species intended by the name *formicalynæ*. Linné, in the tenth edition of the 'Systema,' simply characterises this by the words, "*alis immaculatis, hyulinis, antennis clavatis. Habitat in Africa*." In the twelfth edition, the word "*clavatis*" is altered, by an evident slip of the pen, to "*setaceis*." No mention of the species is made in either edition of the 'Fauna.' Notwithstanding its African habitat, he refers to another figure in Roesel (tab. xxi. fig. 2), which decidedly represents (from Germany) the Swedish species described by him as *formicarium*.

The Linnean collection, in the possession of the Linnean Society of London, adds to the difficulty. The only Ant-lion in that collection bearing a label in Linné's hand-writing is the plain-winged Swedish insect (there are several specimens of it, all with the characteristic Linnean pins, but only one bearing a label), and that label is "*formicalynæ*"! I absolutely refuse, considering the African habitat given for *formicalynæ*, and the evidence of Swedish entomologists, to acknowledge this specimen as typical. Before the collection was placed in its present quarters, it was so maltreated by additions, destructions, and misplacement of labels, as to render it a matter of regret that it now exists at all.\* Any evidence it now furnishes is only trustworthy when confirmed by the descriptions. It is true that the few words of diagnosis given for *formicalynæ* will apply to this insect so far as they go; but the African habitat of *formicalynæ*, and the fact that the label-bearing insect is the known Swedish species well described by Linné as *formicarium*, render it certain that this label has been wrongly placed, after the destruction of the specimen that originally bore it, which was probably one of the many African species with immaculate hyaline wings, now indeterminable.

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\* Cf. Staudinger, 'Catalog der Lepidopteren des Europäischen Faunengebiets,' vorwort, pp. xvi-xvii., 1871.

If, therefore, our system of nomenclature be limited to the twelfth edition of the 'Systema,' as is the custom with many naturalists, the familiar spotted-winged Ant-lion, usually known as *formicarius*, is in the position of being nameless; but as this species was evidently that intended by the diagnosis in the tenth edition, with the name *formicaleo*, we may very justly retain both names, and the species and their synonymy will now stand as follows:—

1. FORMICALEO, Linné, Syst. Nat. ed. x.; Poda.

*Formicarius* (Vallisnieri; Réaumur, Geoffroy; Roesel, tab. xvii.-xx.; Sulzer\*), Fabricius; Olivier; Panzer; Latreille; Stephens; Rambur; Westwood; Burmeister; Brauer; Hagen; McLachlan, *olim.*; etc. (*nec* Linné, Syst. Nat. ed. xii.).

2. FORMICARIUS (UM.), Linné, Syst. Nat. ed. xii. (Schäffer, 'Elementa' et 'Icones'; † Roesel, tab. xxi. fig. 2); Dahlbom; J. B. Fischer; Wallengren.

*Formicaleo*, Linné, Faun. Suec. ed. ii. (*nec* Syst. Nat., ed. x.); O. F. Müller.

*Formicalynx*, Burmeister; Hagen; Brauer; McLachlan, *olim* (*nec* Linné).

*Innotatus*, Rambur; Costa.

*Neutrum*, Fischer v. Waldheim.

[3. FORMICALYNX, Linné, Syst. Nat. ed. x., et ed. xii. (*Species Africana, indeterminata*).]

I have already stated that no species of Ant-lion has been detected in the British Isles: ‡ and I do not believe that such insects exist here. But if my views in this respect should ultimately prove to be erroneous, it may be that, instead of the spotted-winged species (*formicaleo*), its plainer congener (*formicarius*), of Swedish notoriety, will assert its claim to a place in our lists.

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\* Those authors whose names are included within the brackets, apply no trivial names to their insects.

The figures in Vallisnieri's 'Opera' (1733) are of extreme coarseness, and, in some of them, intentional caricatures of the human face, or figure are introduced, a practice not confined to him only among the earlier authors. The figures of the magnified larvæ are good.

† Hagen (Stettiner ent. Zeit., 1866, p. 439) refers the figure in Schäffer's 'Elementa' to No. 2, and those in the 'Icones' to No. 1. In both works the species represented is No. 2 (*formicarius*).

‡ The spotted-winged species has been erroneously recorded as British, by Barbut.